

# PATENT ABSTRACTS OF JAPAN

(11)Publication number : 04-186824

(43)Date of publication of application : 03.07.1992

(51)Int.Cl.

H01L 21/205

H01L 21/02

H01L 29/20

(21)Application number : 02-314432

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(22)Date of filing : 21.11.1990

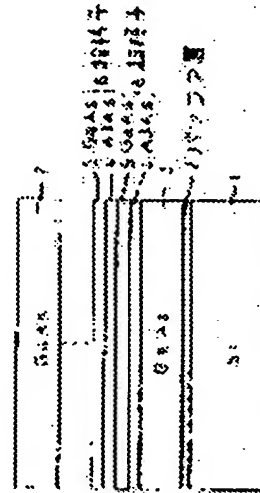
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## (54) SEMICONDUCTOR SUBSTRATE AND MANUFACTURE THEREOF

### (57)Abstract:

**PURPOSE:** To obtain a semiconductor substrate with a GaAs layer, which is low in dislocation density and is formed on a substrate, by a method wherein the semiconductor substrate is formed into one of a substrate, wherein the GaAs layer is formed on the substrate, superlattice structure layers, which respectively consist of an AlAs layer and a GaAs layer, are formed on the GaAs layer and a GaAs layer is formed on the superlattice structure layer.

**CONSTITUTION:** A semiconductor substrate is formed into one of a structure wherein a GaAs layer 3 is formed on a substrate 1, superlattice structure layers 6, which respectively consist of an AlAs layer 4 and a GaAs layer 5, are formed on the layer 3 and a GaAs layer 7 is formed on the layer 6. For example, a polycrystal-shaped GaAs buffer layer 2 is grown on an Si substrate 1 in a thickness of about 10nm at 450° C and thereafter, the layer 2 is heated up to 700° C and a GaAs single crystal layer 3 is grown in a thickness of 2.0  $\mu$ m. Then, an AlAs layer 4 of a thickness of about 50nm is formed at 450° C using an ALE method and thereafter, the layer 4 is heated up to 700° C and a GaAs layer 5 of a thickness of about 100nm is grown using an MOCVD method. A growth process of a superlattice structure layer 6 consisting of the above layers 4 and 5 is repeatedly executed a plurality of times and after that, a GaAs layer 7 of a thickness required for a device is grown at 700° C using an MOCVD method.



## LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]